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GLYPTOPHYSA COSMETA (IREDALE, 1943) IN VICTORIA (LYMNAEOIDEA : PLANORBIDAE), WITH NOTES ON AESTIVATION.

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This note is to record *Glyptophysa cosmeta* (Iredale, 1943), previously only known from the type locality, Calala Lagoon, near Tamworth northern New South Wales, from Victoria and to report on unusual aestivation behaviour exhibited by this species.

On 16 May 1973, 10 specimens of a strongly sculptured left-handed freshwater snail were discovered by one of us (R.B.) closely adhering to bark and sticks lying in mud at the edge of the Loddon River at Bridgewater in central Victoria. The shells are distinguished by numerous (17-18) strong spiral ridges on the body whorl with fine axial ribs in the interspaces, the rounded shoulder of the body whorl, and the proportionately very large aperture with wide periostracal projection or fringe. Unlike the other left-handed species collected at the same time, these specimens were very difficult to dislodge, the aperture fitting closely to the bark or stick with the periostracal fringe spread out. The animal has a large thick mantle all around the aperture, a small foot, and long, little-tapering tentacles. At no time when crawling did the animal lift the shell far off the substratum, nor did it extend far beyond the shell. The largest shell measures 6.5 x 4.1 mm.

At the suggestion of Dr. W. F. Ponder, the species has been compared with the type series of *Glyptomoda cosmeta* Iredale (1943: 220), from Calala Lagoon, near Tamworth, northern New South Wales in the Australian Museum, and is undoubtedly identical. Since 1943, except for brief mentions and very inadequate figure (Iredale, 1944: 123, fig. 6; Allan, 1959: 421), *G. cosmeta* has not been noted in the literature, nor does it appear to have been recollected. Through the kindness of Dr. Ponder, new figures of the largest of syntypes, drawn by Mr. E. K. Yoo, Malacology Department, Australian Museum, are given here.

The associated molluscan fauna with the specimens found at Bridgewater in the Lodden River consists of *Plotiopsis balonnensis, Bulinus (Isidorella)* sp., *Glyptophysa aliciae, Physastra* sp. and *Ferrissia (Pellancylus) petterdi.*

On 31 August 1976, three more specimens of *G. cosmeta* were collected (by B.J.S.) from the Gunbower State Forest, between Gunbower Creek and the Murray River approximately 5 km S.E. of Koondrook, north central Victoria. They were found in cracks in logs out of water in an area subject to intermittant inundation in a state of aestivation the significance of which will be discussed below.

G. cosmeta is separated from *G. aliciae* (Reeve, 1862) as the latter species/subspecies complex (Iredale, 1943, 1944) has strong spiral ridges without axial ribs, no periostracal fringe, and an angular shoulder to the body whorl. Its animal has a large foot, a small mantle within the aperture, and is very active and extends well beyond the shell when crawling.

Calala Lagoon, near Tamworth, is on the eastern headwaters of the Darling River branch of the Murray-Darling River system. The Loddon River at Bridgewater is well towards the southern headwaters of the Murray River. Both rivers rise on the landward flank of the Great Dividing Range; the two localities are about 800 km apart in a straight line, or 2000 km apart around the river system. *G. cosmeta* probably occurs elsewhere in this river system, but its strong adhesion, small size, and possibly cryptic habitat makes it difficult to find.

Following McMichael (1967: 142), *Glyptophysa* Crosse, 1872 is used in place of *Glyptomoda* Iredale, 1943. Eight specimens of *G. cosmeta* from the Loddon River and the three from Gunbower State Forest are deposited in the wet collection of the National Museum of Victoria, and two specimens from the Loddon River in the Australian Museum, Sydney.

The finding of the specimens of *G. cosmeta* in the Gunbower State Forest near Koondrook in an aestivation stage is worthy of special note. The specimens were found sealed down tight to the timber surface in cracks under large logs where the ground still held faint traces of moisture. The situation where they were found was obviously subject to periodic inundation with cracked ground, water lines on the trees and a lack of ground vegetation. Information from the State Rivers and Water Supply

Commission (to whom thanks are due) indicates that the last time this area was under water was November 1975. Thus the snails have been out of water in an aestivating condition for over six months. When taken from the log, there was no internal epiphragm structure visible but the shells were sealed down to the wood. The foot was visible and when immersed in water the animals emerged and were crawling in six to eight hours. Although empirically this appears to be a "sensible" way for the freshwater gastropods to overcome long periods of drying in such a marginal situation, this is the first record known to us of an aquatic snail using this technique to exist in an area when the water dries out. The physiological implications for the species are enormous with similar adaptation being necessary in the basommatophorans to those seen in the desert land snails which undergo similar periods of drought adaptation.

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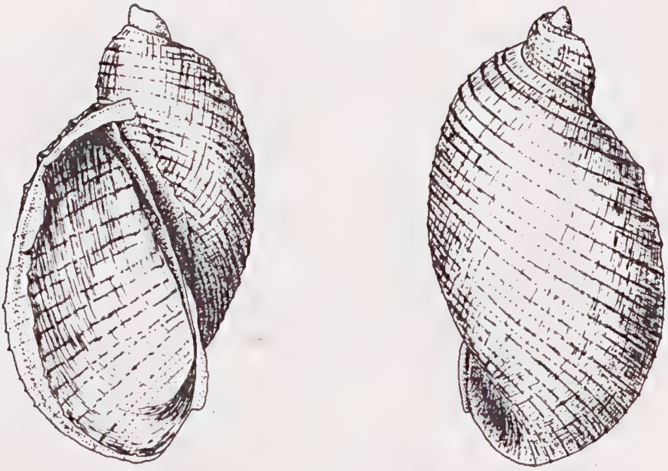

Glyptophysa cosmeta (Iredale, 1943). Calala Lagoon, near Tamworth, northern New South Wales. Largest syntype, 6.5 x 3.3 mm (Aust. Mus.) Note periostracal fringe folded into aperture along lip and projecting at lower end of columella.